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Two new species of the genus *Acampylotes* Yang (Lepidoptera, Zygaenidae, Chalcosiinae) from China

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Abstract: Two new species of the chalcosiid genus *Acampylotes* Yang, 1987 are described: *A. melanoleucus* **sp. nov.** (China: Northwest Yunnan) and *A. shannanus* **sp. nov.** (China: South Xizang). The comparison is mainly made with *A. guianus* Yang & Chen, 1987, *A. philomena* (Oberthür, 1923), *A. stellata* Huang & Horie, 2025 and *A. uedai* Horie & Huang, 2025. The adults and genitalia of the aforementioned taxa are illustrated.

Keywords: diversification, Chalcosiinae, Himalaya, new species, taxonomy

中国产异曲斑蛾属二新种（鳞翅目，斑蛾科，锦斑蛾亚科）

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摘要：本文描述了来自中国西南部的异曲斑蛾属 *Acampylotes* Yang, 1987 二新种，即产自云南省西北部的黑白异曲斑蛾 *Acampylotes melanoleucus* **sp. n.** 与产自西藏南部的山南异曲斑蛾 *A. shannanus* **sp. n.** 本文图示并比较了新种与其近似种的成虫及生殖器。

关键词：分化，锦斑蛾亚科，喜马拉雅，新种，分类学

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Introduction

The genus *Acampylotes* Yang, 1987 (type species *A. guianus* Yang & Chen, 1987, by original designation) is recently revised by Huang *et al*. (2025) and currently known by ten species distributed in Southwest China and Northeast Myanmar. The examination of the male and female genitalia revealed that *Acampylotes* is more closely related to the genera *Panherpina* Bryk, 1936 (type species *Herpa basiflava* Oberthür, 1891, by original designation) and *Neoherpa* Tremewan, 1973 (type species *Herpa venosa* Walker, 1854, by monotypy) than to *Campylotes* Westwood, 1839 (type species *C. histrionicus* Westwood, 1839, by original designation) and the detailed diagnosis of this genus has been provided in Huang *et al*. (2025). In the course of studies on the chalcosiid moths from China, we acquired two additional new species of *Acampylotes* from Northwest Yunnan and South Xizang, respectively, and they are described herein. We also update the checklist of the genus accordingly and provide Chinese common names for all of them.

Material and methods

Specimens examined are deposited in the following institutional and private collections: the Leibniz Institute for the Analysis of Biodiversity Change, Museum Koenig (ZFMK, former Zoologisches Forschungsmuseum Alexander Koenig), Bonn, Germany; the Museum of Comparative Zoology at Harvard University (MCZ), Cambridge, Massachusetts, USA; the National Museum of Nature and Science (NSMT), Tsukuba, Japan; the Kitakyushu Museum of Natural History and Human History (KMNH), Kitakyushu, Japan and the research collection of Kiyoshi Horie (CKH), Tokyo, Japan. Photos of imagoes were taken by a Sony DSC-RX100 v1.00 camera, a Canon EOS 6D or with a Panasonic DC-G91. Abdomens were removed and macerated in hot 10% NaOH or KOH solution for examination of male and female genitalia. Photos of genitalia were taken under a Keyence VHX-2000 digital microscope, a Keyence VHX-7000 digital microscope and a Canon EOS 5DS R. Adult and genitalia photos were all processed by Adobe Photoshop CS5 ® software. Terminology of adult and genitalia morphology follows Klots (1970), Yen *et al*. (2005) and Huang *et al*. (2025). Abbreviations used in the plates: HT = holotype; PT = paratype; gen. prep. No. = genitalia preparation number; NT = neotype; LT = lectotype.

Label data. For the holotype label citations, information provided in quotation marks is transcribed verbatim. Different labels are separated by a forward slash ("/") while the different lines of the same label are separated by a vertical bar ("|"). Any additional data are provided in square brackets. The content of the labels of additional specimens examined including paratypes is edited/translated in accordance with English grammar and standardized.

Results

Genus *Acampylotes* Yang, 1987

Type species: *A. guianus* Yang & Chen, 1987, by original designation.

Remarks. 1) It should be noted that the genus name *Acampylotes* is the aggregation of Greek prefix "a-", meaning "un-" or "non-", and the genus name "campylotes", which is combined with the latinised Greek word "καμπύλος" (kampýlos), meaning "curved" or "bent", and the Greek masculine suffix "-ώτης" (-ōtēs), and therefore the gender is masculine. However, in the genus *Campylotes*, most taxon names, e.g. *altissima*, *burmana*, *maculosa* etc., have been given incorrect feminine ending. The use of feminine endings was followed by Huang *et al*. (2025) since the gender of *Acampylotes* and *Campylotes* is the same, and the authors were misled by the feminine ending of the older names in *Campylotes*. To avoid further confusion and comply with Article 34.2 of ICZN (1999), in the present study we use masculine endings for the two adjective species epithets in accordance with the gender of the genus name. Last but not least, following Sommerer (2002) and Nieukerken *et al*. (2019), we decide not to amend the feminine endings for the species epithets *magnifica* and *stellata* in Huang *et al*. (2025) to maintain the stability

of nomenclature. **2)** In Huang *et al*. (2025), the caption of Fig. 42 on the plate is wrong, it should be "*A. uedai* **sp. n.**, HT" instead of "*A. endoi* **sp. n.**, HT", and *endoi* is the provisional manuscript name for *uedai*. Here we correct this error.

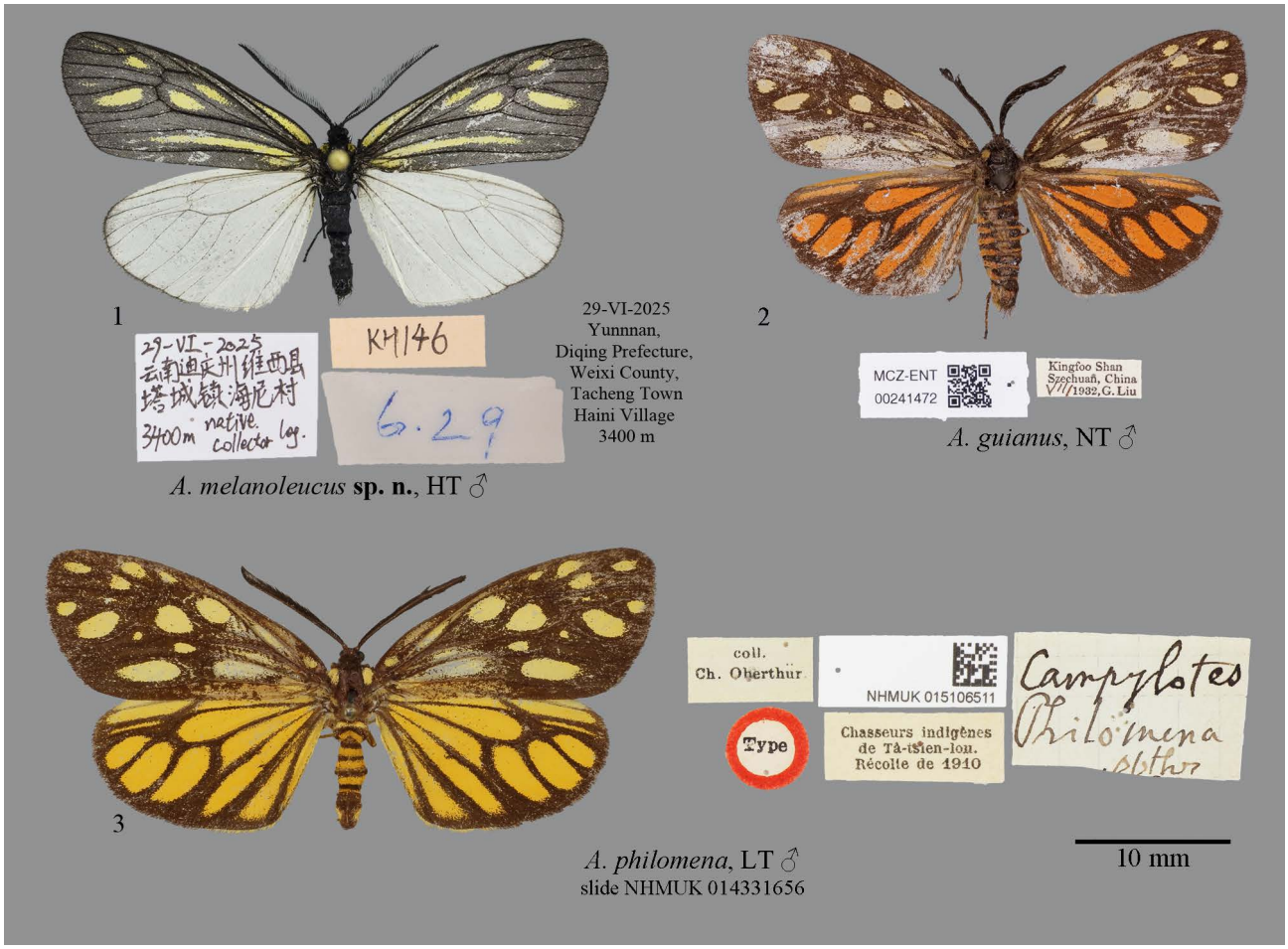
Acampylotes melanoleucus sp. nov. 黑白异曲斑蛾

http://zoobank.org/urn:lsid:zoobank.org:pub:C3D817F4-5F13-4B54-A069-BE965EFBB526

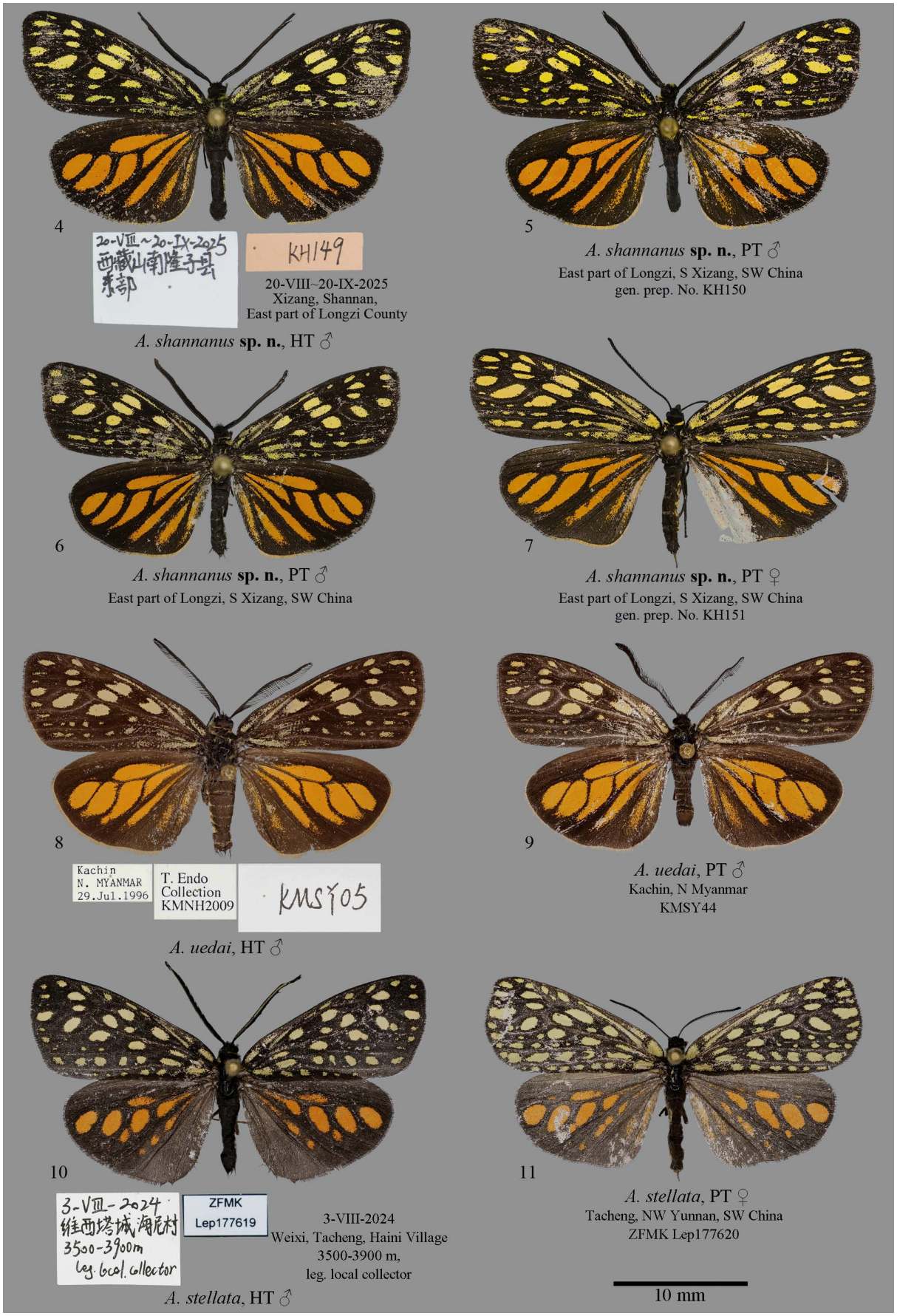
Figs. 1, 16 & 25

Material examined. Holotype: male, handwritten label "29-VI-2025 | 云南迪庆州维西县 | 塔城镇海尼村 [Yunnan, Diqing Prefecture, Weixi County, Tacheng Town, Haini Village] | 3400 m native collector leg. " / handwritten label "KH146" / handwritten tracing paper label "6. 29" (CKH, will be deposited in NSMT).

Diagnosis. Superficially *A. melanoleucus* **sp. nov.** can be easily distinguished from all the congeners by the white ground color on hindwing without any patterns, while in all the other species the ground color of hindwing is black with yellow, orange or red patterns. The male genitalia of *A. melanoleucus* **sp. nov.** are similar to those of *A. guianus* Yang & Chen, 1987 and *A. philomena* (Oberthür, 1923), but can be distinguished by the broader uncus, the broader and somewhat shorter valvae and the longer cornuti on vesica. The vesica of *A. melanoleucus* **sp. nov.** also bears more cornuti than those of *A. guianus* and *A. philomena*. The male genitalia of *A. melanoleucus* **sp. nov.** are also somewhat similar to those of the sympatric *A. chenluae* Huang & Horie, 2025 and *A. wenhaoi* Huang & Horie, 2025, but can be readily distinguished from the latter two species by the broader valvae and the shorter vesica. In addition, the vesica of *A. melanoleucus* **sp. nov.** bears more cornuti than that in *A. wenhaoi*. Superficially *A. melanoleucus* **sp. nov.** can be readily distinguished from the latter two species by the white hindwing.



FIGURES 1–3. Adults of *Acampylotes* spp. Depository of the specimens: **1** in CKH; **2** in MCZ; **3** in NHMUK (©The Trustees of NHMUK).



FIGURES 4–11. Adults of *Acampylotes* spp. Depository of the specimens: **4–7** in CKH; **8** & **9** in KMNH; **10 & 11** in ZFMK.

Description. Male. Length of forewing 18 mm. Antennae black, bipectinate. Head, thorax and abdomen black, with pale yellow tegula. Forewing ground color pale black with pale yellow stripes and patches. Costa with a stripe at basal one forth; discoidal cell with two elongated patches distally; space R_5 with an oval patch; space M_3 with an elongated oval patch; space CuP with a slender stripe and space 1A+2A with an oval basal patch. Cilia black. Hindwing ground color white with apex and veins sightly suffused with black. Cilia black from apex to the middle of space 1A, and white from the middle of space 1A to tornus. 8th tergite long trapezoid, with the distal section bilobated. **Male genitalia.** Uncus well-developed, trapezoid in ventral view and distally bilobated. Tegumen nearly the same length as uncus, simple, with a pair of blade-like posterior tegumenal processes which medially connected by membrane. Vinculum slender. Juxta absent. Saccus nearly triangular. Valvae trapezoid without any process, sacculus nearly trapezoid with the internal section gradually becoming membranous, and setose around the outer margin; cucullus nearly triangular, setose on its inner surface. Phallus ventrally bulged, downcurved near the medial section with the bulbus ejaculatorius cap-like. Phallus vesica well-developed, saccate, with 12 spike-like cornuti of various length arising from a bandlike sclerotised basal plate.

Female unknown.

Distribution: Southwestern China (NW Yunnan).

Etymology. The specific epithet *melanoleucus* is the aggregation of the Greek prefix "*melano*-", meaning black, and the Greek word "*leucus*", meaning white, referring to the black and white ground colors on forewing and hindwing, respectively. The name is an adjective, gender masculine.

Acampylotes shannanus sp. nov. 山南异曲斑蛾

http://zoobank.org/urn:lsid:zoobank.org:pub:87274343-8F29-4A4E-A25B-C0D1AEDDA890

Figs. 4–7, 12, 13, 19, 20, 28, 29 & 34

Material examined. Holotype: male, handwritten label "29-VIII~20-IX-2025 | 西藏山南隆子县 | 东部 [Xizang, Shannan, East part of Longzi County]. " / handwritten label "KH149" (CKH, will be deposited in NSMT). **Paratypes:** 7 males, 1 female, same data as in holotype, gen. prep. No. KH150 (male) and KH151 (female) (CKH).

Diagnosis. Superficially *A. shannanus* **sp. nov.** is reminiscent of *A. uedai* Horie & Huang, 2025 (Figs. 8, 9, 14, 21, 22, 30 & 31) and *A. stellata* Huang & Horie, 2025 (Figs. 10, 11, 15, 23, 24, 32, 33 & 35), and can be readily distinguished from them by the bicolour (black and pale orange) cilia on hindwing in both sexes (Figs. 12 & 13), while in *A. uedai* the cilia are pale orange throughout (Fig. 14) and in *A. stellata* the cilia are black throughout (Fig. 15). In addition, in *A. shannanus* **sp. nov.** the orange stripes on hindwing are narrower than those in *A. uedai*, and the female of *A. shannanus* **sp. nov.** has a narrower and more elongated forewing than that in *A. stellata* (the female of *A. uedai* is unknown). In male genitalia, *A. shannanus* **sp. nov.** can be distinguished from *A. uedai* and *A. stellata* by the sharper distal end of uncus and the longer phallus. In addition, the phallus vesica of *A. shannanus* **sp. nov.** is much narrower and slender than that in *A. stellata* and directed downwards, while in the latter the vesica is directed upwards (the phallus vesica of *A. uedai* was not fully everted therefore is not comparable). Since the female of *A. uedai* is unknown, the female genitalia of *A. shannanus* **sp. nov.** are compared with *A. stellata***,** and they differ from those of *A. stellata* in the much narrower and more sclerotised ductus bursae and the absence of signa in corpus bursae.

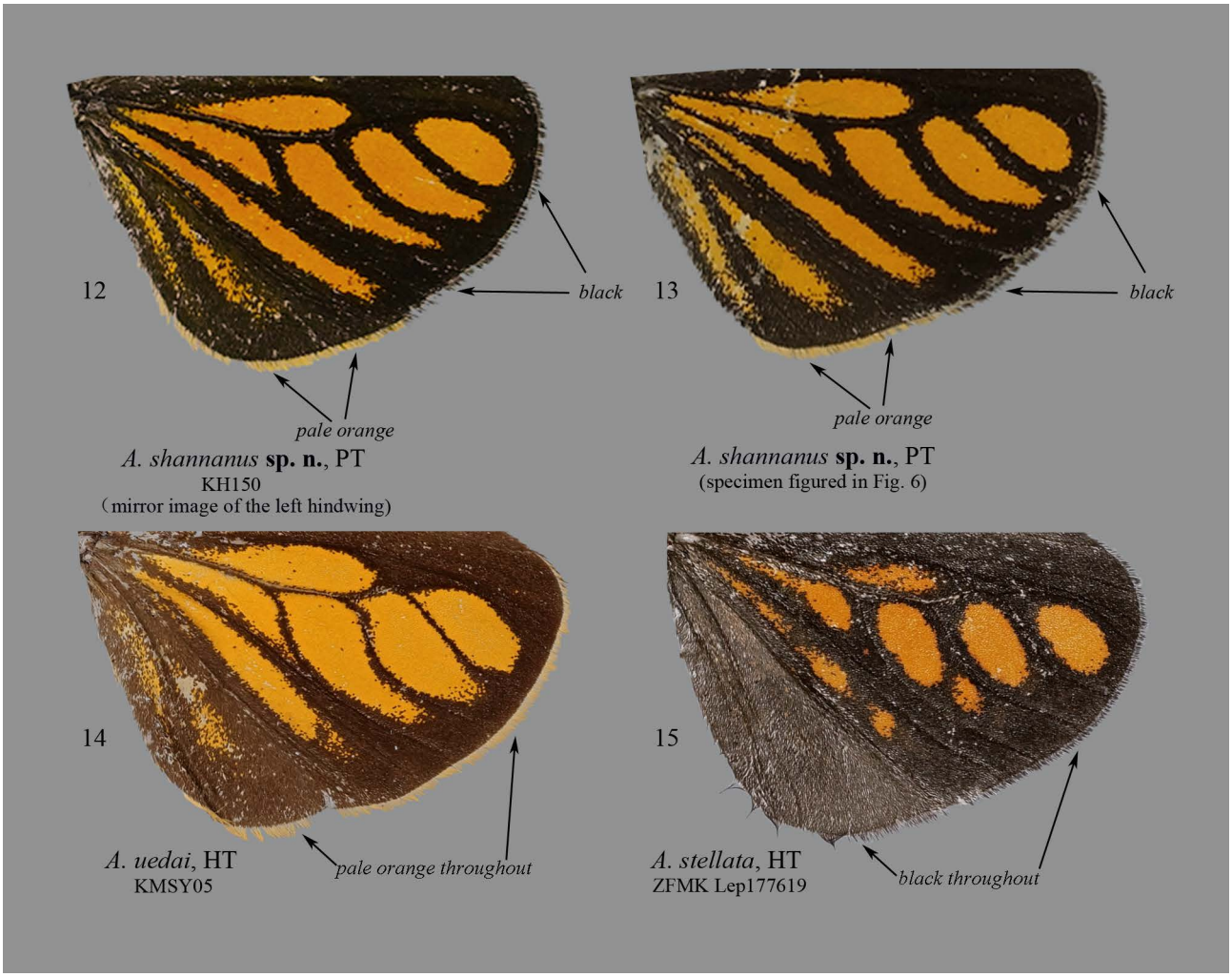
Description. Male. Length of forewing 14–15 mm. Antennae black, bipectinate. Head, thorax and abdomen black, with black tegula. Forewing ground color black with numerous bright yellow patches of various sizes in all spaces. Cilia black. Hindwing ground color black with orange stripes in discoidal cell and spaces M_2 to 3A. Cilia black from apex to the middle of space 1A, and pale orange from the middle of space 1A to tornus. 8th tergite nearly trapezoid, with the distal margin flat. **Male genitalia.** Uncus well-developed, trapezoid in ventral view and distally bilobated with sharpe distal end. Tegumen broader than uncus, simple, with a pair of bayonet-like posterior tegumenal processes which medially connected by membrane. Vinculum slender. Juxta absent. Saccus triangular.

Valvae trapezoid without any process, sacculus nearly trapezoid with the internal section gradually becoming membranous, and setose around the outer margin; cucullus nearly triangular, setose on its inner surface. Phallus nearly cylindrical with the bulbus ejaculatorius cap-like. Phallus vesica well-developed and elongated, about two thirds of the length of phallus, with a series of cornuti of various length arising from a bandlike sclerotised basal plate.

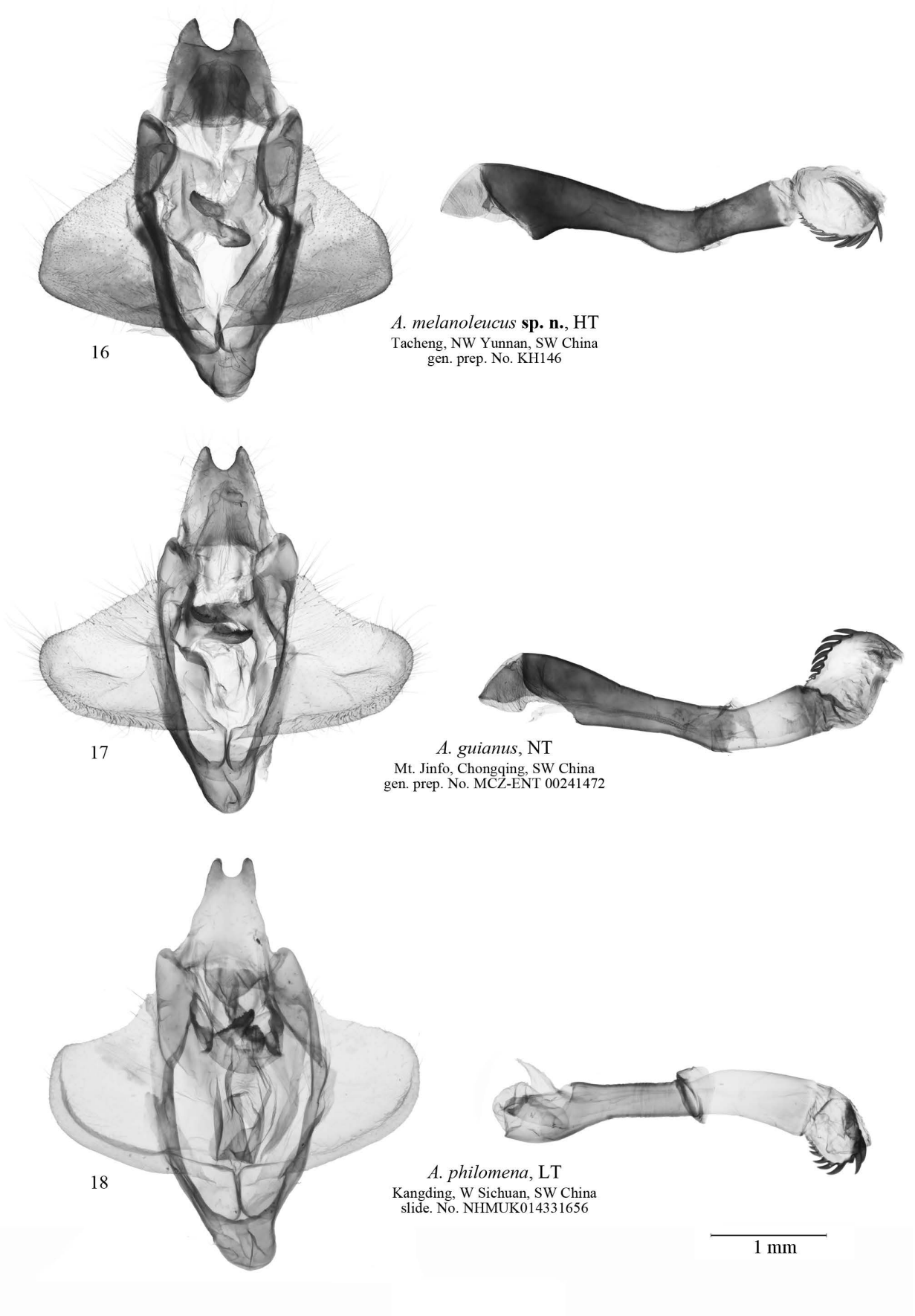
Female. Length of forewing 15 mm. Body same as in male. Forewing narrower with yellow patches generally larger. Hindwing same as in male. **Female genitalia.** Ovipositor elongated and membranous, about two thirds of the length of apophyses posteriores. Apophyses posteriores about twice the length of apophyses anteriores, both strongly sclerotised. Ostium bursae rounded. Ductus bursae sclerotised posteriorly and medially, gradually becoming membranous towards the anterior end. Corpus bursae pyriform and membranous, without signum.

Distribution: Southwestern China (S Xizang).

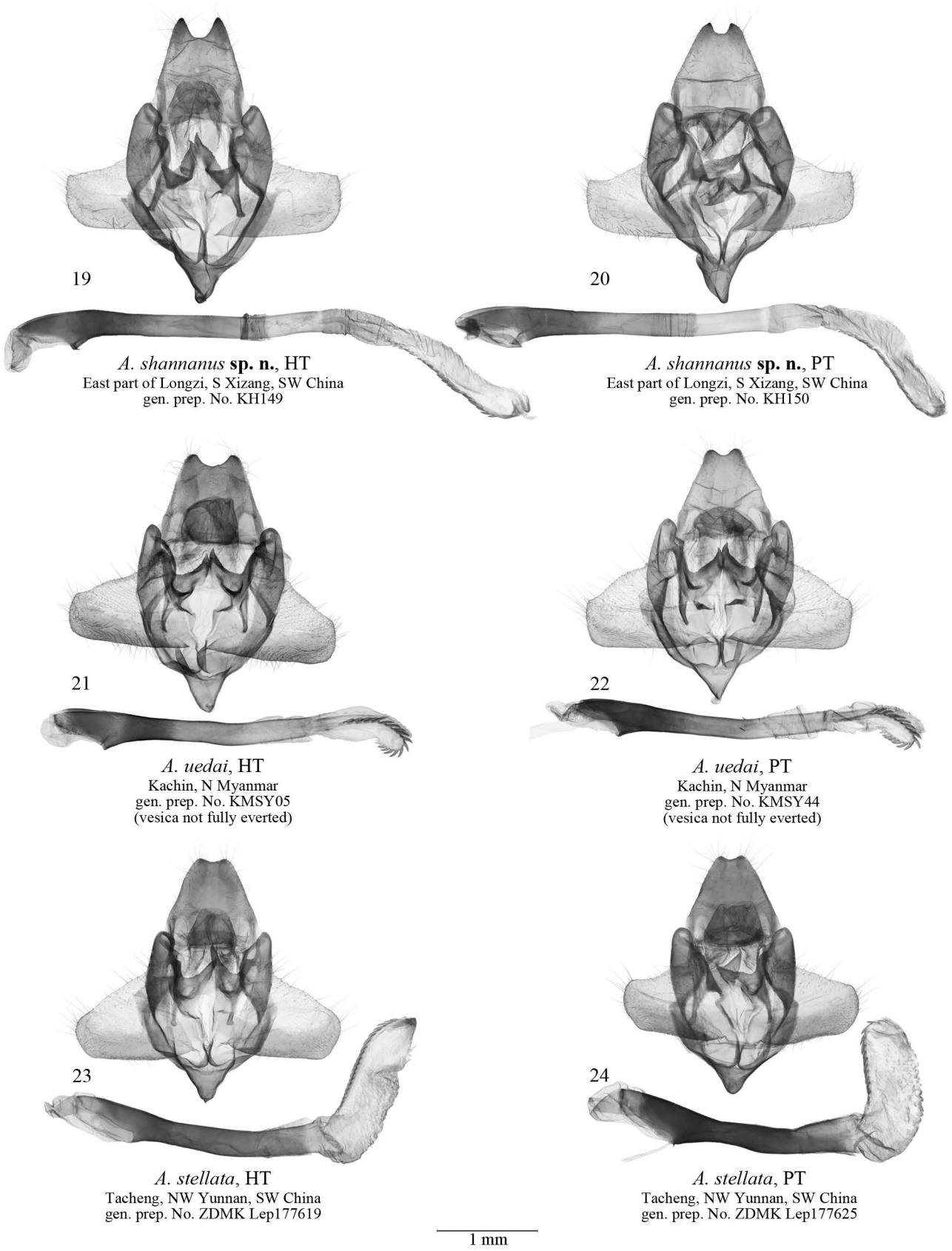
Etymology. The specific epithet *shannanus* is derived from the type locality of the new species, the Shannan Prefecture in Xizang Antonomous Region. The name is an adjective, gender masculine.



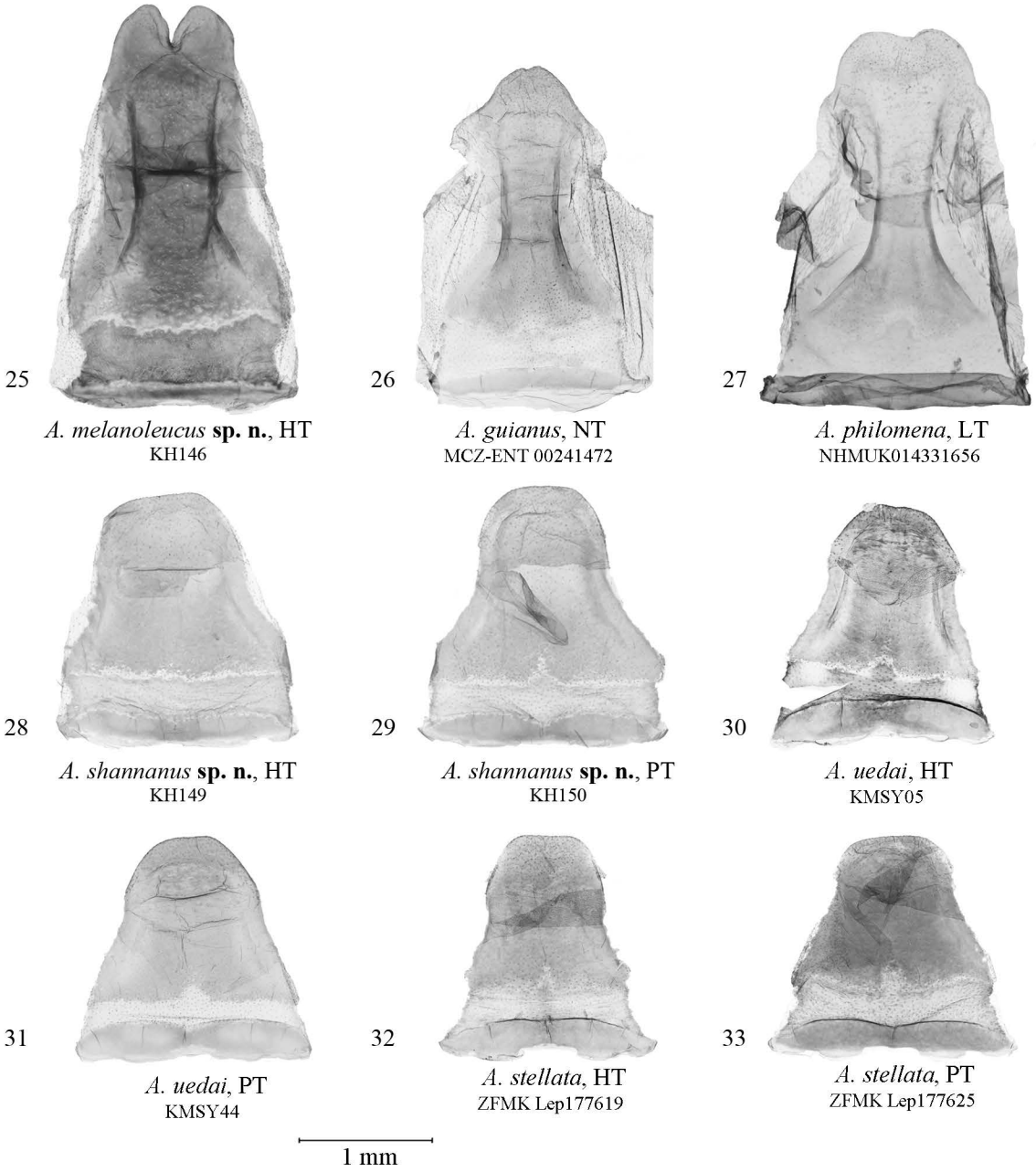
FIGURES 12–15. Enlarged hindwing of male of *Acampylotes* spp, showing cilia. Depository of the specimens: **12 & 13** in CKH; **14** in KMNH; **15** in ZFMK.



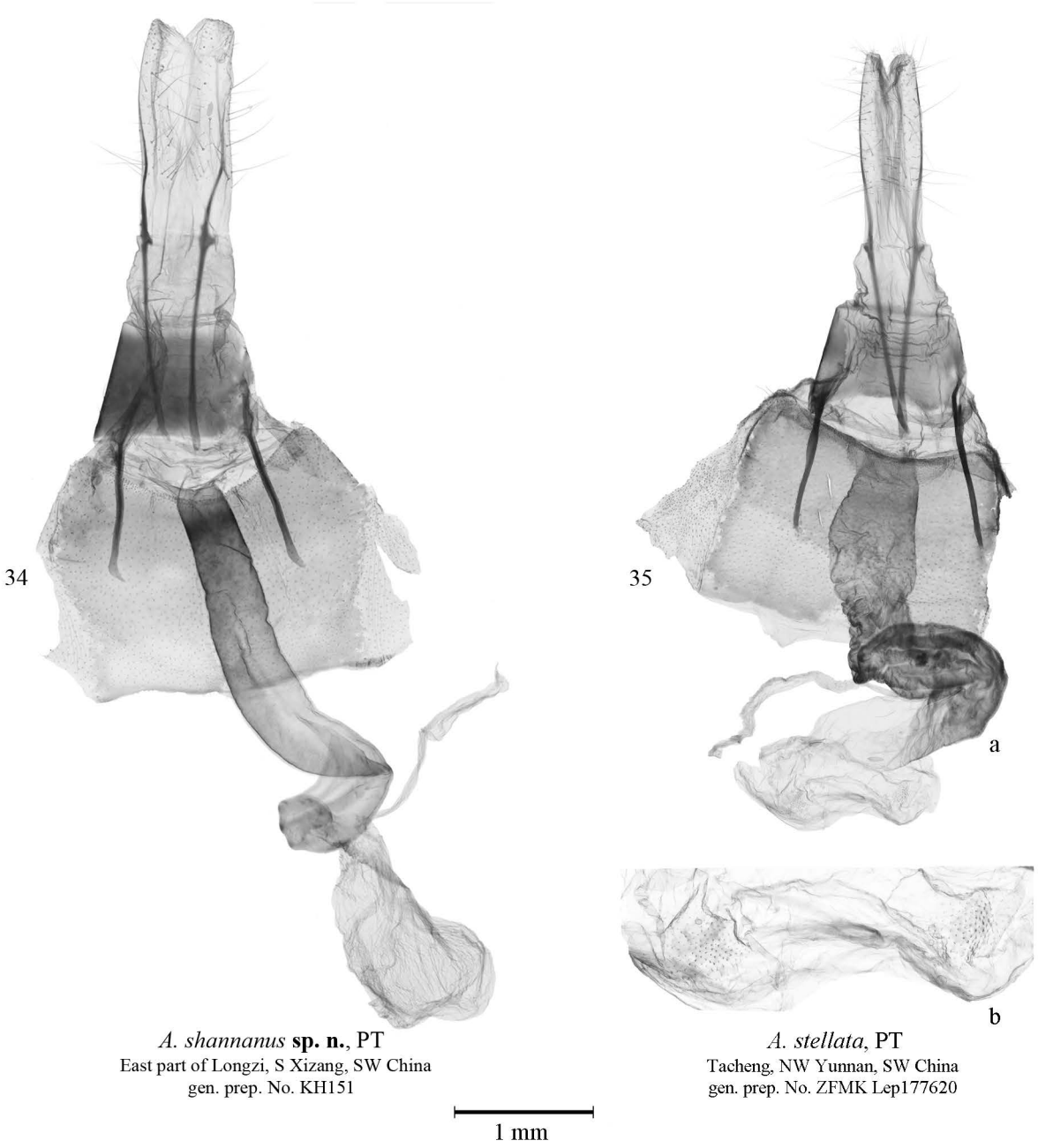
FIGURES 16–18. Male genitalia of *Acampylotes* spp. Depository of the specimens: **16** in CKH; **17** in MCZ; **18** in NHMUK (©The Trustees of NHMUK).



FIGURES 19–24. Male genitalia of *Acampylotes* spp. Depository of the specimens: **19 & 20** in CKH; **21 & 22** in KMNH; **23 & 24** in ZFMK.



FIGURES 25–33. 8th tergite of *Acampylotes* spp. Depository of the specimens: **25, 28 & 29** in CKH; **26** in MCZ; **27** in NHMUK (©The Trustees of NHMUK); **30 & 31** in KMNH; **32 & 33** in ZFMK.



FIGURES 34 & 35. Female genitalia of *Acampylotes* spp. Depository of the specimens: **34** in CKH; **35** in ZFMK. a = whole female genitalia; b = signa on corpus bursae, magnified.

An updated checklist of the genus *Acampylotes* (with Chinese common names)

A. chenluae Huang & Horie, 2025 (Southwest China: Yunnan) 陈氏异曲斑蛾

A. guianus Yang & Chen, 1987 (Southwest China & South China: Guizhou, Chongqing & Guangxi) 异曲斑蛾

A. gunteri Huang & Horie, 2025 (West China: Sichuan) 君特异曲斑蛾

A. magnifica Huang & Horie, 2025 (Southwest China: Yunnan) 华丽异曲斑蛾

A. melanoleucus Huang & Horie **sp. nov.** (Southwest China: Yunnan) 黑白异曲斑蛾 **新种**

A. minoshimai Huang & Horie, 2025 (North Myanmar: Kachin) 蓑岛异曲斑蛾

A. minima (Oberthür, 1894) (West & Central China: Sichuan, Hubei, Shaanxi, Gansu, Henan) 小异曲斑蛾

A. philomena (Oberthür, 1923) (West China: Sichuan) 黄异曲斑蛾

A. stellata Huang & Horie, 2025 (Southwest China: Yunnan) 星尘异曲斑蛾

A. uedai Horie & Huang, 2025 (North Myanmar: Kachin) 上田异曲斑蛾

A. shannanus Horie & Huang **sp. nov.** (Southwest China: Xizang) 山南异曲斑蛾 **新种**

A. wenhaoi Huang & Horie, 2025 (Southwest & West China: Yunnan & Sichuan) 文浩异曲斑蛾

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Additional information

Author contributions: Conceptualization: S-Y Huang & K Horie. Project administration: S-Y Huang. Resources: K Horie. Supervision: S-Y Huang. Visualization: S-Y Huang. Writing–original draft: S-Y Huang. Writing–review and editing: S-Y Huang & K Horie.

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Data availability: All of the data that support the findings of this study are available in the main text.

Ethical statement: No ethical statement was reported.

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